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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/829,096	04/21/2004	Stephen L. Johnson	9432-000273	5992
27572 7590 10/09/2007 HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 828 BLOOMFIELD HILLS, MI 48303			EXAMINER CAO, DIEM K	
			ART UNIT 2194	PAPER NUMBER
			MAIL DATE 10/09/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/829,096

Applicant(s)

JOHNSON ET AL.

Examiner

Diem K. Cao

Art Unit

2194

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

  
WILLIAM THOMSON  
SUPERVISORY PATENT EXAMINER

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. Claims 1-20 are pending. Applicant has amended claims 1, 2, 6, 8, 9, 14 and 15.

#### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 1-6, 8-10 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ma et al. (U.S. 5,920,725) in view of Akgul et al. (U.S. 2003/0074487 A1).**

As to claim 1, Ma teaches a method for replacing a loadable software module in a system (a run-time object-updating system; col. 4, lines 36-38), comprising:

- maintaining a reference count for a given software module (object 132; col. 10, line 30) loaded in the system (each object maintains its own reference count; col. 10, lines 42-43), including maintaining separate reference counts for each loadable version of the given software module (inherent from "each object maintains its own reference count"; col. 10, lines 42-43, thus, objects of old version or new version maintain references of themselves),
- loading a replacement software module (replacement object 132' ... instantiated; col. 10, lines 47-49) for the given software module into the system (object 132),
- receiving a reference for the given software module after the replacement software module is loaded into the system (new reference to object 132; col. 10, line 49), and

Art Unit: 2194

- directing the reference for the given software module to the replacement software module when the reference count is greater than zero based on the version information (instead, new reference ... to the new objects 132'; col. 10, lines 51-56).

Ma does not teach replacing a loadable software module in an operating system, registering version information of the replacement software module with an operating system kernel. However, Ma teaches the invention is not limited to application system, various modifications to the invention will be apparent to person skill in the art (col. 5, lines 49-59). Akgul teaches replacing a loadable software module in an operating system (a module may be installed anywhere in the kernel space 102; page 3, paragraph 37, for module updating; page 3, paragraph 39), registering version information of the replacement software module with an operating system kernel (the module global variable; page 3, paragraph 37, page 4, paragraph 40).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Ma and Akgul because Ma teaches updating is occurred while the application still running (col. 4, lines 59-63), thus avoid undesirable downtime in the systems (col. 4, lines 7-10), and the technique would overcome the same problems in the operating system art.

As to claim 2, Ma as modified teaches maintaining a second reference count for the replacement software module (inherent from "each object maintains its own reference count; col. 10, lines 42-43").

As to claim 3, Ma as modified teaches wherein the step of directing the reference to the replacement software module further comprises incrementing the second reference count for the replacement software module (each object maintains its own reference count, which is incremented as another object references it; col. 10, lines 42-43).

As to claim 4, Ma as modified teaches unloading the given software module when the reference count is zero (Object 132 ... immediately deleted; col. 10, lines 57-58).

As to claim 5, Ma as modified teaches wherein the step of maintaining a reference count further comprises incrementing the reference count when an application invokes a requested function provided by the given software module and decrementing the reference count when the requested function is completed by the given software module (each object ... object releases it; col. 10, lines 42-44).

As to claim 6, Ma as modified teaches a reference is further defined as a request for a requested function provided by the given software module (the reference count ... currently communicating with the object; col. 7, lines 32-34, request; col. 8, line 47).

As to claim 8, see rejections of claim 1 and 4 above. Akgul further teaches linking the replacement software module into the kernel of the operating system (page 4, paragraph 40).

As to claims 9-10, see rejections of claims 2-3 above.

As to claim 12, Ma and Akgul do not teach the kernel of the operating system is further defined as a Linux kernel. However, Akgul does not limit the operating system to only one type of OS, thus, it would have been obvious that the kernel of the Operating System could be a Linux kernel.

As to claim 13, Ma and Akgul do not teach the loadable software module is further defined as an access control module operating within the Linux Security framework. See rejection of claim 12 above for teaching regarding Linux kernel. Akgul further teaches access control module (Scheduler module 103; see Fig. 1)

**4. Claims 7, 11, and 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ma et al. (U.S. 5,920,725) in view of Akgul et al. (U.S. 2003/0074487 A1) further in view of Corbet (Porting Drivers to the 2.5 kernel).**

As to claim 7, Ma and AKGUL do not teach the step of maintaining a reference count is performed by a reference count manager. However, Corbet teaches the reference count is managed outside the object (page 148, section 2.4), thus, there should be a manager to take care of this reference count. It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the teaching of Corbet to the system of Ma and Akgul because Corbet teaches moving manipulating the count of reference to a module outside the object would over the error prone when it was manipulated inside the module itself (page 148, section 2.4)

As to claim 11, Ma as modified by Corbet teaches the step of maintaining a reference count further comprises incrementing the reference count when a kernel control path starts using the loadable software module and decrementing the reference count when the kernel control path stops using the loadable software module (see Ma; col. 8, lines 42-44 and Corbet; page 148, section 2.4).

As to claim 14, see rejections of claims 1 and 7 above. Corbet further teach the reference count manager residing in the execution environment (2.5 kernel; abstract and page 148, section 2.4). Akgul teaches the kernel residing in the execution environment (kernel, operating system; page 1, paragraph 2).

As to claim 15, see rejection of claim 2 above.

As to claim 16, Ma as modified by Corbet teaches the kernel is in data communication with the reference count manager to access the reference count upon receipt of the resource request for the loadable software module (see Corbet; any code ... reference count; page 148, section 2.4).

As to claim 17, see rejection of claim 4 above.

As to claims 18-20, see rejections of claim 11-13 above.

***Response to Arguments***

5. Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO 892.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Diem K. Cao whose telephone number is (571) 272-3760. The examiner can normally be reached on Monday - Friday, 8:30AM - 4:30PM.




Art Unit: 2194

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Thomson can be reached on (571) 272-3718. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DC  
September 20, 2007



WILLIAM THOMSON  
SUPERVISORY PATENT EXAMINER